

A new Genus of Spiders of the Subfamily Metaltellinae (Araneae, Amaurobioidea) from southeastern Australia

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The metaltelline genus, *Austmusia* **gen. nov.**, from southeastern Australia and three species, *A. wilsoni* **sp. nov.**, *A. kioloa* **sp. nov.**, and *A. lindi* **sp. nov.**, are described. This represents the first record of the subfamily Metaltellinae outside the neotropical region. The presence of a simplified tracheal system in *Austmusia* is noted.

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INTRODUCTION

The subfamily Metaltellinae has previously been recorded only from the southern and central neotropical region (synanthropic in the southern nearctic (Leech, 1971)). Lehtinen (1967) recognized four genera in the subfamily: *Metaltella* Mello-Leitao 1931, *Ciniflrella* Mello-Leitao 1921, *Calacadia* Exline 1940 and *Exlinea* Lehtinen 1967. Leech (1971) synonymized *Exlinea* with *Metaltella* and noted (Leech, 1972) that *Ciniflrella* should be regarded as a **nomen dubium** (type material lost, description inadequate). *Metaltella* is a cribellate genus while both *Calacadia* and the genus described below, *Austmusia* **gen. nov.** from eastern Australia, are ecribellate. These genera are apparently derived from a palaeoaustral fauna which occupied the southern parts of Gondwanaland.

METALTELLINAE Lehtinen 1967

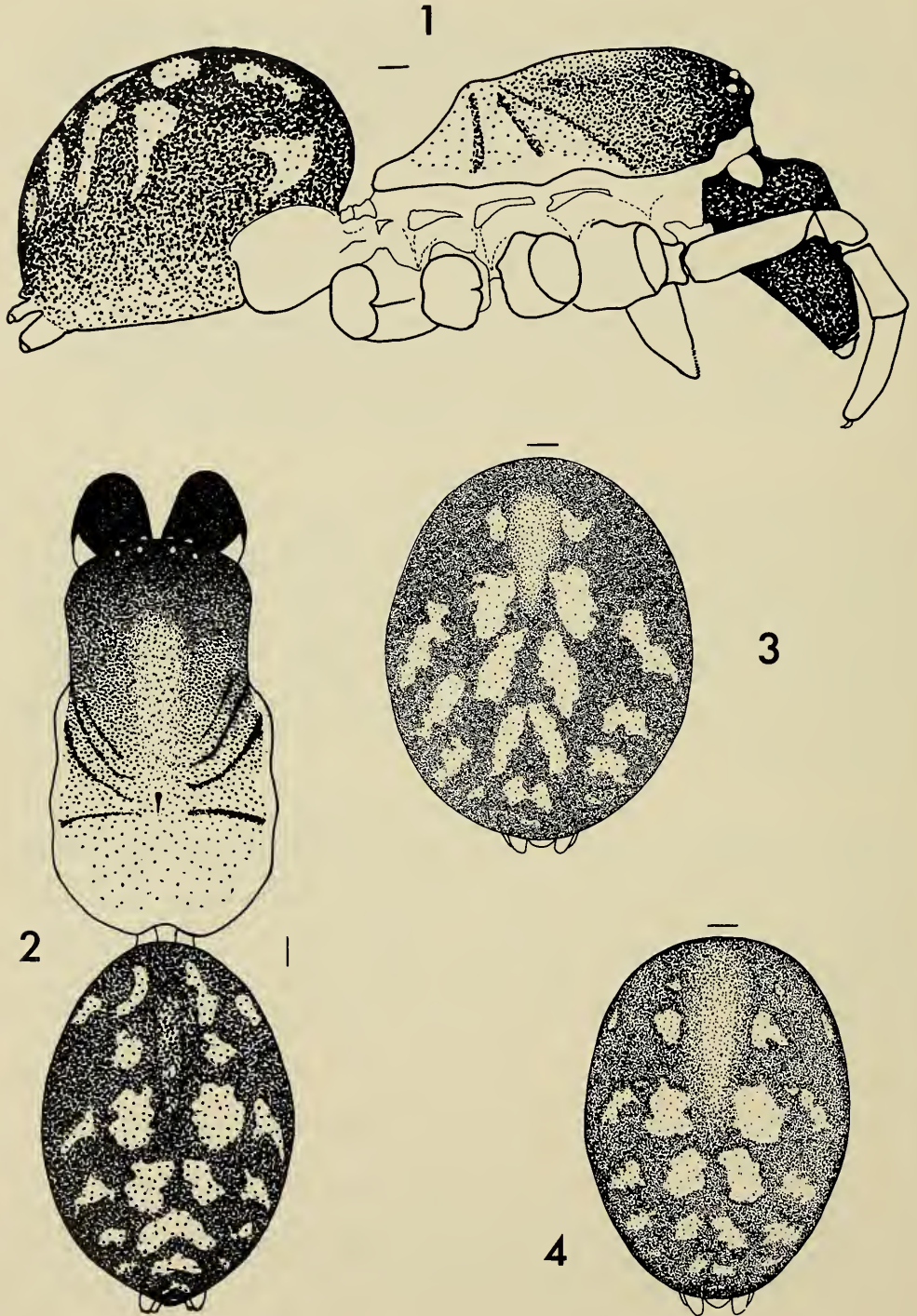
Diagnosis: Ecribellate or cribellate; cribellum bipartite. Chelicerae with 2-6 retrolateral and 3-7 prolateral teeth. Labium longer than wide. Male palp with reduced primary conductor. Secondary conductor a large, falciform, anteriorly-directed process enclosing a long, curved, slender embolus. Tegulum more or less bulbous basally. Median apophysis absent. Fixed anterior tegular apophysis present or absent. Epigynum with a large, flat, well-sclerotized plate, lateral teeth present or absent. Internal genitalia usually with convoluted ducts, sometimes simple, with associated diverticula.

KEY TO GENERA

1. Ecribellate. Cheliceral teeth 2 (retro.) and 2-3 (pro.) Epigynum with short lateral teeth or none 2
- Cribellate. Cheliceral teeth 4-6 and 5-7. Epigynum with elongate lateral teeth. *Metaltella*
2. Male palp with large patellar apophysis. Epigynal plate unmodified *Calacadia*
- Male palp lacking patellar process. Epigynal plate with a pair of depressions roofed anteriorly by thin laminae *Austmusia*

Austmusia **gen. nov.**

Diagnosis: Ecribellate. Cheliceral groove with 2 retrolateral, 3 prolateral teeth. Male



Figs 1-4. Body pattern, females. 1 and 2, *Austmusia wilsoni* sp. nov. 1, lateral; 2, dorsal. 3, *A. kioloa* sp. nov., dorsal abdomen. 4, *A. lindi* sp. nov., dorsal abdomen. Scale lines 0.45 mm.

palp with a vestigial primary conductor. Basal tegulum bulbous; tegular process hook-like. Patellar process absent. Epigynum with two shallow depressions roofed anteriorly by thin cuticular laminae. Two tracheal tubes confined to abdomen.

Description: Large spiders, 10 to 14 mm body length. Carapace dark brown, darkest anteriorly; central cephalic and marginal thoracic areas lighter orange brown. Abdomen dark brownish-grey dorsally with well-defined fawn markings (Figs 1-4). Ventral abdomen light brown with two lateral, dark grey, longitudinal stripes. Chelicerae black with an orange boss. Legs banded dark and light brown.

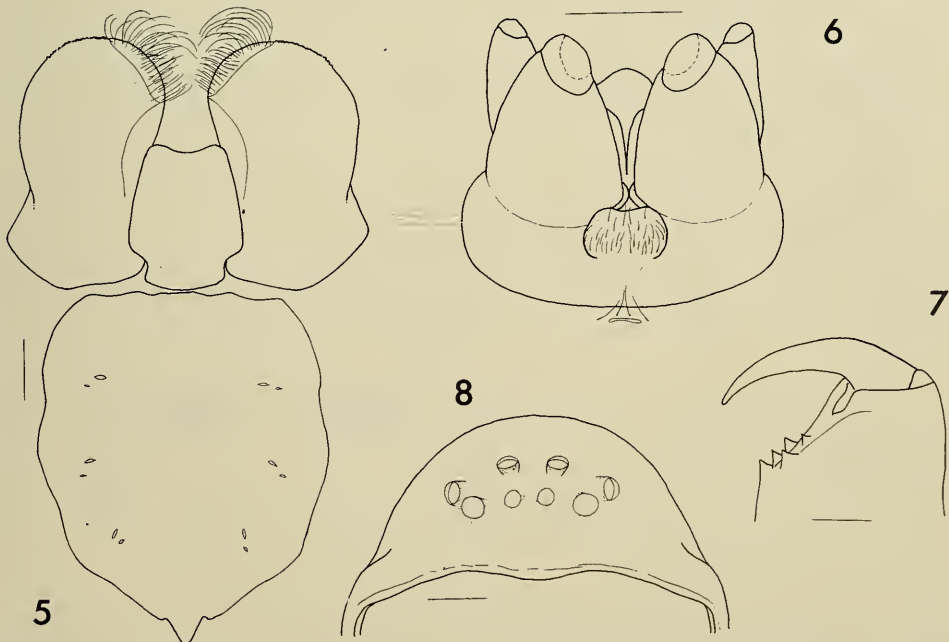
Carapace (Figs 1, 2) almost glabrous, cephalic area prominent, arched longitudinally, raised at fovea. Clypeus vertical, height three to four times the width of an A.M.E. Anterior median eyes smallest. From above both eye rows straight to slightly recurved; from in front both rows procurved (Fig. 8).

Cheliceral teeth, Fig. 7; maxillae, labium, sternum, Fig. 5. Sternum with three prominent groups of lyriform organs near each lateral margin.

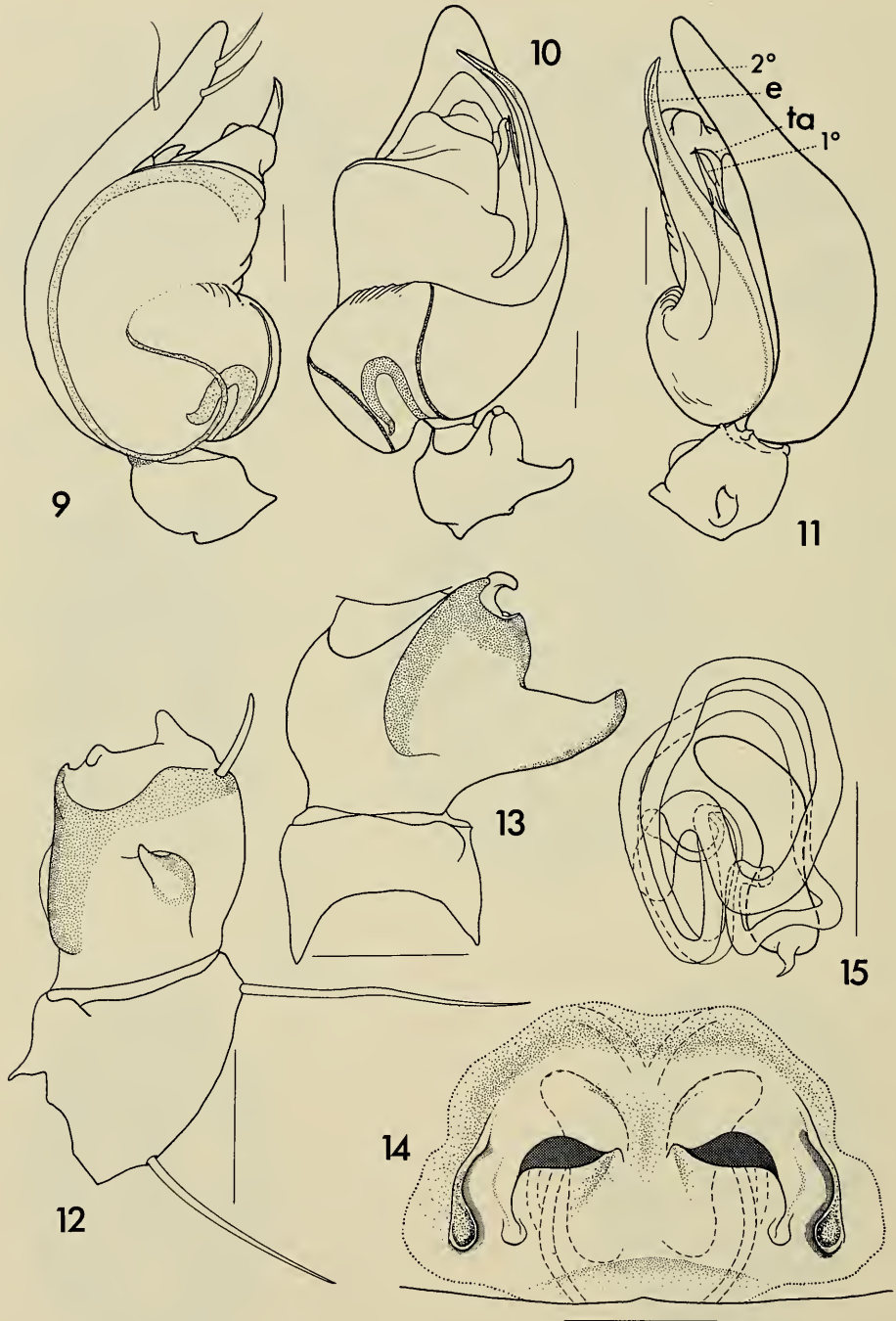
Legs 4123 (females) or 1423 (males). Trochanters weakly notched. Hairs plumose, feathery hairs absent. Ventral spination, legs 1 and 2, tibia 222, metatarsus 221. Tarsal organ tear-shaped, widest distally (Figs 18, 19). Trichobothria in single row on tarsi and metatarsi, double row on tibiae. Trichobothrial bases collariform; hood striated, margin entire (Figs 16, 17). Superior tarsal claws with eight to thirteen teeth; inferior claw with four to eight teeth. Toothed bristles present ventrally on distal tarsus.

Abdominal spiracle narrow and situated just in front of colulus. Colulus a large, rectangular, pilose plate, slightly wider than long, distal margin slightly notched (Fig. 6). Spinnerets six, short. Epiandrous glands absent. Tracheal system consists of two tubes only, confined to abdomen (Fig. 31).

Palpal organ (Figs 9-11) with a vestigial primary conductor. Basal tegulum bulbous,



Figs 5-8. *Austmusia wilsoni* sp. nov. 5, maxillae, labium, sternum. 6, spinnerets, colulus, spiracle. 7, cheliceral teeth. 8, eyes, anterior view. Scale lines 0.5 mm.



Figs 9-15. *Austmusia wilsoni* sp. nov. 9-11, male palp. 9, prolateral; 10, ventral; 11, retrolateral (e = embolus, ta = tegular apophysis, 1° = primary conductor, 2° = secondary conductor). 12-13, male palpal tibia and patella; 12, retrolateral; 13, ventral. 14-15, female genitalia. 14, epigynum; 15, internal genitalia, dorsal, left hand side. Scale lines 0.2 mm.

separated from apical part by a deep transverse furrow. Apical tegulum with a fixed hook-like process arising subapically on retrolateral side. Ejaculatory duct visible on lower tegulum. Male palpal tibia (Figs 12-13) with a prominent, retrolateral basal process and a retrolateral ventral lamina which ends apically in a small blunt hook. Patellar processes absent.

Epigynum (Fig. 14) broad and strongly sclerotized with a pair of large, shallow depressions, open posteriorly but roofed anteriorly by thin cuticular laminae. Lateral teeth absent. External foveae placed in the posterior ends of two deep, curved grooves near each lateral epigynal margin. Internal genitalia (Fig. 15) with convoluted spermathecal ducts (partly visible externally) into which a pair of diverticula open. Spermathecae adjacent near midline, elongate, narrowest centrally. Fertilization ducts short, broad.

Type Species: Austmusia wilsoni sp. nov.

Etymology: Exline (1960) named the Chilean metaltelline genus *Calacadia* after the Californian Academy of Sciences. This provides a precedent for similarly naming the closely related Australian genus, *Austmusia*, after its repository institution, The Australian Museum.

Type Repository: The Australian Museum, Sydney (A.M.).

Austmusia wilsoni sp. nov.

(Figs 1-2, 9-15, 16, 18, 31)

Diagnosis: Male palp with apex of primary conductor level with highest part of tegular process (Fig. 11). On the basal tegulum a broad segment of the ejaculatory duct loops apically between two slender diverging segments of the duct (Figs 9, 10). Female genitalia with long spermathecae, the anterior ends bent 45° laterally (Fig. 15).

Female holotype (A.M., KS 5736)

Measurements (mm) — Carapace length 5.57 (5.10-6.40), width 3.51 (3.19-3.98), height 2.21 (2.02-2.50). Abdomen length 5.50 (5.25-6.10), width 4.25 (3.80-4.65).

Colour pattern — as for genus. Posterior paired abdominal markings often fused medially.

Carapace — longer than wide in ratio 1: 0.63. Clypeus height 4 diameters of an A.M.E.

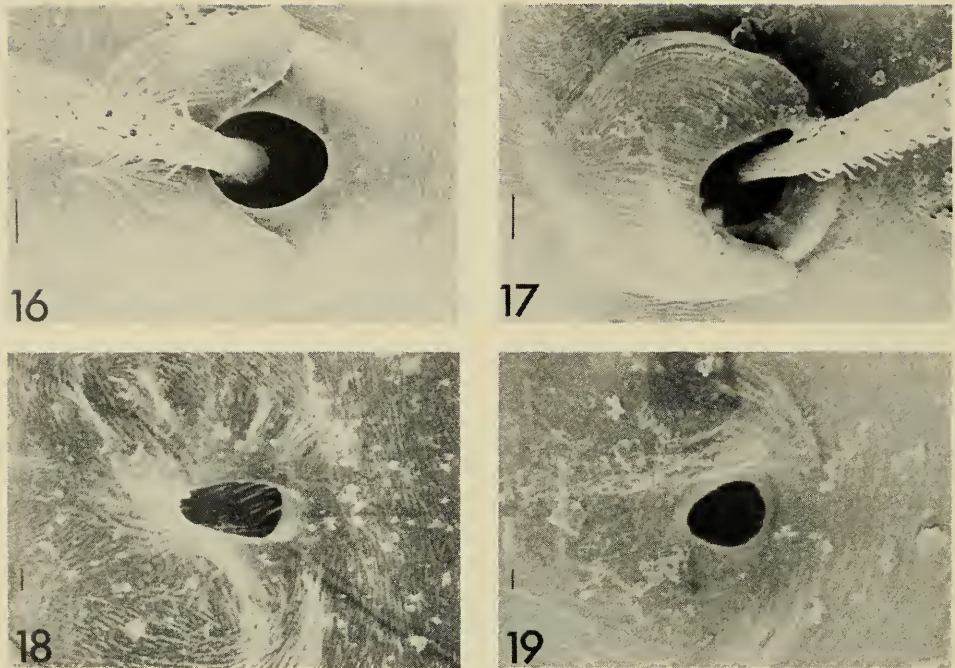
Eyes — ALE > PLE > PME > AME in ratio of 1: 0.87: 0.74: 0.52. Interdistances (mm): AME-AME 0.14, AME-ALE 0.15, ALE-PLE 0.13, PLE-PME 0.38, PME-PME 0.26. M.O.Q. (mm): length 0.58, anterior width 0.44, posterior width 0.64. Eye row width (mm): anterior 1.25; posterior 1.50. From above A.E.R. straight, P.E.R. recurved; from in front A.E.R. gently procurved, P.E.R. strongly procurved.

Labium — longer than wide in ratio 1: 0.63

Sternum — longer than wide in ratio 1: 0.83

Legs: 4123. Lengths, legs 1-4 (mm): 18.28, 16.38, 14.94, 18.55. Spination: Leg 1, femur p 01, d 213; tibia p 11, r 11, v 222; metatarsus p 012, r 012, v 221. Leg 2, femur p 0111, d 01212; tibia p 011, r 001, v 222; metatarsus p 112, r 012, v 221. Leg 3, femur p 0111, d 1202; tibia p 011, r 011, d 010, v 222; metatarsus p 112, r 112, d 010, v 221. Leg 4, femur p 101, d 1102; tibia p 101, r 101, d 01, v 212; metatarsus p 112 or 111, r 112 or 111, d 010 or 011, v 221. Tarsal organ a narrow, tear-shaped opening, widest distally, not on obvious mound. Trichobothria, legs 1-4: tarsus 10, 9, 9, 9; metatarsus 9, 9, 9, 9. Tarsal claws; superior 11-13 teeth; inferior 4-8 teeth.

Genitalia — Figs 14, 15. Spermathecae visible externally, elongate with the apical third to half bent 45° laterally. Spermathecal length approximately half the width of the epigynum (measured between the lateral foveal margins). Diverticulum duct narrow



Figs 16-19. Sensilla, first tarsus. 16-17, trichobothrial base. 16, *Austmusia wilsoni*; 17, *A. kioloa*. 18-19, tarsal organ. 18, *A. wilsoni*; 19, *A. kioloa*. Scale lines: 16-17, 0.006 mm; 18-19, 0.002 mm.

with a small, rounded, distal part which lies well lateral to and below the level of the anterior end of the spermatheca. Fertilization ducts short and broad.

Male paratype (A.M., KS 7795)

Similar to female except as follows—

Measurements (mm) — Carapace length 5.49 (4.59-6.41), width 3.79 (3.20-4.21), height 2.16 (1.98-2.45). Abdomen length 5.30 (4.85-5.75), width 3.50 (3.00-3.80).

Carapace — longer than wide in ratio 1: 0.67. Clypeus height 3 diameters of an AME.

Eyes PLE \geq ALE $>$ PME $>$ AME in ratio 1: 0.95: 0.81: 0.72. Interdistances (mm): AME-AME 0.08, AME-ALE 0.14, ALE-PLE 0.06, PLE-PME 0.26, PME-PME 0.18. M.O.Q. (mm): length 0.58, anterior width 0.42, posterior width 0.58. Eye row width (mm); anterior 1.10; posterior 1.29.

Chelicerae — cheliceral teeth: retrolateral 2; prolateral 3 with an additional microtooth.

Labium — longer than wide in ratio 1: 0.79.

Sternum — longer than wide in ratio 1: 0.78.

Legs — 1423. Length, legs 1-4 (mm): 19.04, 16.76, 14.12, 18.84. Spination: Leg 1, femur p 0011, d 122; tibia p 112, r 011, v 222; metatarsus p 11, r 010, v 221. Leg 2, p 1011, d 122; tibia p 11, r 11, v 222; metatarsus p 112, r 012, v 221. Leg 3 femur p 101, d 122; tibia p 11, r 11, d (1)01, v 22; metatarsus p 112, r 112, d 010, v 221. Leg 4, femur p 101, d 112; tibia p 11, r 011, d (1)01, v 212; metatarsus p 112, r 112, d 010, v 221. Trichobothria, legs 1-4: tarsus 9, 8, 8, 9; metatarsus 10, 9, 8, 8. Tarsal claws: superior 11-12; inferior 4-8.

Palp — Figs 9-13. Apex of reduced primary conductor level with highest part of hooked regular process. Course of ejaculatory duct on basal tegulum — Figs 12, 13.

Types:

Holotype female — KS 5736 (A.M.), Cathedral of Ferns, Mt. Wilson, N.S.W., M. Gray, 17.4.1974; under log, depauperate closed forest.

Paratypes — Male, KS 7795 (A.M.), Mt. Wilson, N.S.W., M. Gray and C. Horseman, May 1978; in pitfall trap, tall open forest. Female, KS 2046 (A.M.), Mt. Wilson, N.S.W., M. Gray and C. Horseman, October/November 1978; in pitfall trap, tall open forest. Male, KS 3877 (A.M.), Waterfall Trail, Mt. Wilson, C. Horseman, August 1979; in pitfall trap, closed forest. Male, KS 7796 (A.M.), Mt. Victoria, 14.5.1972, G. S. Hunt; under log in valley, tall open forest. Male, KS 7797 (A.M.), Mt. Edwards, Boyd Plateau, N.S.W., M. Gray, 15.5.1971; under log, tall open forest. Female, KS 7798 (A.M.), Blood Filly Creek, Boyd Plateau, N.S.W., M. Gray 26.3.1976; in rotting log, tall open forest.

Austmusia kioloa sp. nov.

(Figs. 3, 17, 19, 20-26)

Similar to *A. wilsoni* except as follows:

Diagnosis: Male palp with apex of primary conductor clearly lower than highest part of regular process (Fig. 22). Ventrally, two slender segments of ejaculatory duct on the basal tegulum first converge anteriorly, then diverge, the prolateral duct curving laterally away (Figs 20, 21). Spermathecae long, apical third enlarged and laterally protuberant (Fig. 26).

Female holotype (A.M., KS 4551).

Measurements (mm) — Carapace length 4.87 (4.48–5.25), width 3.15 (2.88–3.43), height 1.89 (1.60–2.18). Abdomen length 5.70 (5.45–5.95), width 4.70 (4.50–4.85).

Carapace — longer than wide in ratio 1: 0.65. Clypeus height 3.5 diameters of an AME.

Eyes — ALE > PLE > PME > AME in ratio 1; 0.95: 0.82: 0.68. Interdistances (mm): AME-AME 0.11, AME-ALE 0.16, ALE-PLE 0.08, PLE-PME 0.30, PME-PME 0.23. M.O.Q. (mm): length 0.53, anterior width 0.39, posterior width 0.61. Eye row width (mm), anterior 1.09; posterior 1.37.

Labium — longer than wide in ratio 1: 0.80.

Sternum — longer than wide in ratio 1: 0.81.

Legs — 4123. Lengths, legs 1-4 (mm): 14.68, 12.79, 11.37, 15.36. Spination: Leg 1, femur p 002, d 111; tibia p 101, r 101, v 222; metatarsus p 111, r 012, d 010, v 221. Leg 2, femur p 101, d 1112; tibia p 101, r 101, v 222; metatarsus p 112, r 012, d 010, v 221. Leg 3, femur p 101, d 1112; tibia p 11, r 101, d 11, v 212; metatarsus p 112, r 112, d 010, v 221. Leg 4, femur p 001, d 112; tibia p 101, r 101, d 01, v 212; metatarsus p 111, r 111, d 012, v 221. Tarsal organ a tear-shaped opening, widest distally, placed on a low, poorly delimited mound. Trichobothria, legs 1-4: tarsus 8, 8, 7, 8; metatarsus 8, 9, 7, 8. Tarsal claws: superior 8-11 teeth; inferior 4-7 teeth.

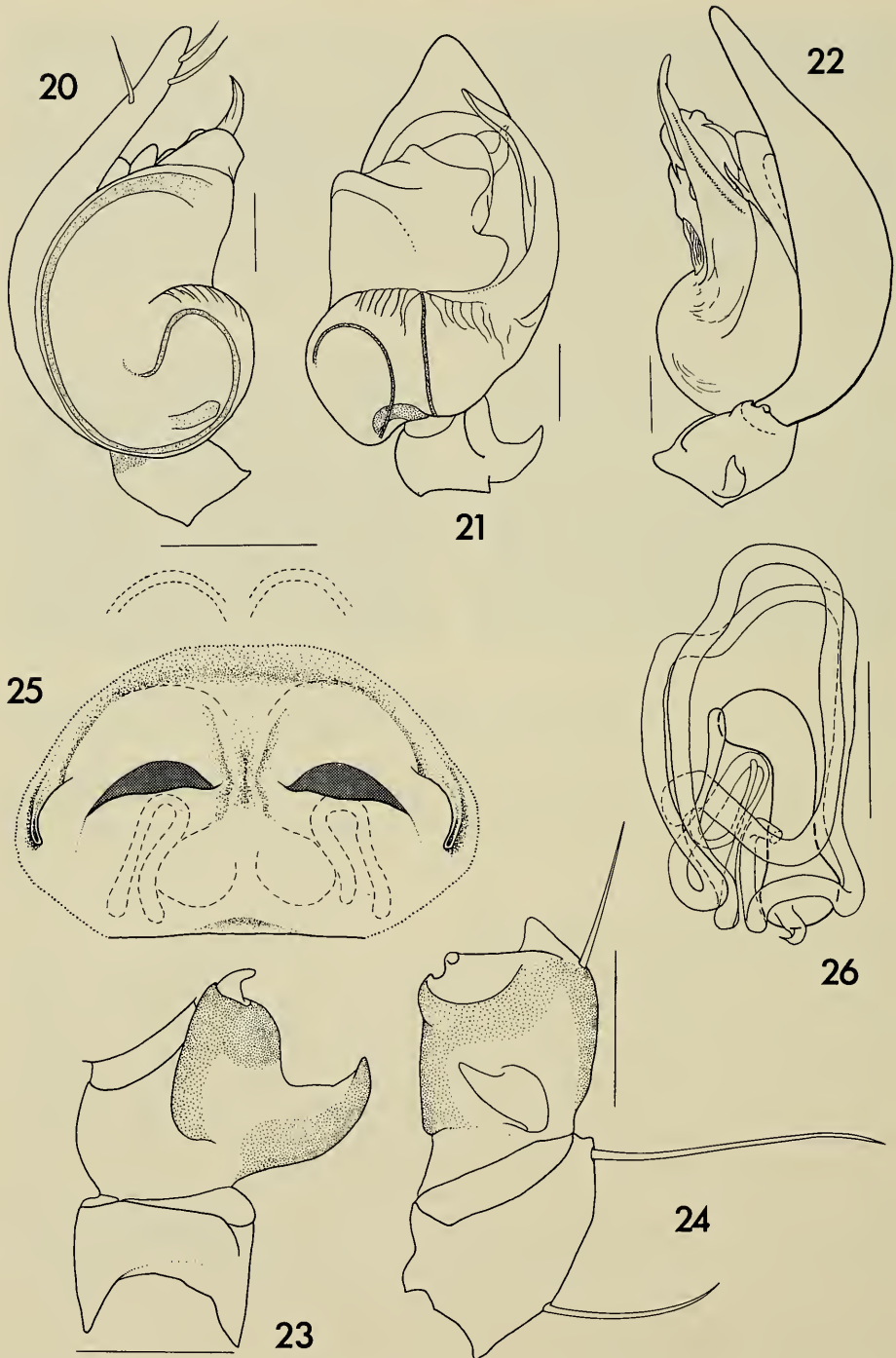
Genitalia — Figs 25, 26. Basal parts of spermathecae visible externally. Spermathecae elongate, apical third laterally bulbous and rounded. Spermathecal length greater than half epigynal width. Diverticulum duct narrow, distal part elongate, lying over or adjacent to apical part of spermathecae. Fertilization ducts longer than in *A. wilsoni*.

Male paratype (A.M., KS 1651)

Similar to female except as follows:

Measurements (mm) — Carapace length 4.67 (3.90–5.15), width 3.37 (2.93–3.60), height 1.70 (1.45–2.03). Abdomen length 4.20 (3.80–4.30), width 3.10 (2.85–3.25).

Carapace — longer than wide in ratio 1: 0.73. Clypeus height 3 diameters of an A.M.E.



Figs 20-26. *Austmusia kioloa* sp. nov. 20-22, male palp. 20, prolateral; 21, ventral; 22, retrolateral. 23-24, male palpal tibia and patella. 23, ventral; 24, retrolateral. 25-26, female genitalia. 25, epigynum; 26, internal genitalia, dorsal, left hand side. Scale lines 0.2 mm.

Eyes — ALE = PLE > PME > AME in ratio 1: 1: 0.95: 0.85. Interdistances (mm): AME-AME 0.10, AME-ALE 0.14, ALE-PLE 0.08, PLE-PME 0.25, PME-PME 0.20. M.O.Q. (mm.): length 0.51, anterior width 0.44, posterior width 0.55. Eye row width (mm): anterior 1.03; posterior 1.30.

Labium — longer than wide in ratio 1: 0.72.

Sternum — longer than wide in ratio 1: 0.83.

Legs — 1423. Lengths, legs 1-4 (mm): 17.42, 15.42, 13.53, 16.83. Spination: Leg 1, femur p 002, d 1111; tibia p 101, r 101, v 222; metatarsus p 112, r 012, v 221. Leg 2, femur p 101, d 1112; tibia p 101, r 101, v 222; metatarsus p 111, r 011, d 012, v 221. Leg 3, femur p 101, d 1112; tibia p 11, r 101, d 01, v 212; metatarsus p 111, r 111, d 012, v 221. Leg 4, femur p 101, d 112; tibia p 101, r 101, d 01, v 212; metatarsus p 111, r 111, d 012, v 221. Trichobothria, legs 1-4: tarsus 10, 9, 8, 9; metatarsus 8, 8, 9, 9. Tarsal claws: superior 8-10 teeth; inferior 4-7 teeth.

Palp — Figs 20-24. Apex of reduced primary conductor well below the highest part of the hooked tegular process. Course of ejaculatory duct on basal tegulum — Figs 20, 21.

Types

Holotype female — KS 4551 (A.M.), Kioloa Forest Drive, Kioloa S.F., N.S.W., M. Gray and C. Horseman, May/June 1979; in pitfall trap, tall open forest.

Paratypes — Male, KS 1651 (A.M.), Kioloa S.F. (rest area on Princes Highway), N.S.W., M. Gray, 14.8.1978; under litter, tall open forest. Male, KS 3115 (A.M.), Kioloa Forest Drive, Kioloa S.F., N.S.W., C. Horseman, May/June 1979; in pitfall trap, tall open forest. Female, KS 2810 (A.M.), same data as KS 3115, March 1979. Male, KS 1730 (A.M.), same data as KS 3115, August 1978.

Austmusia lindi sp. nov.

(Figs 4, 27, 28)

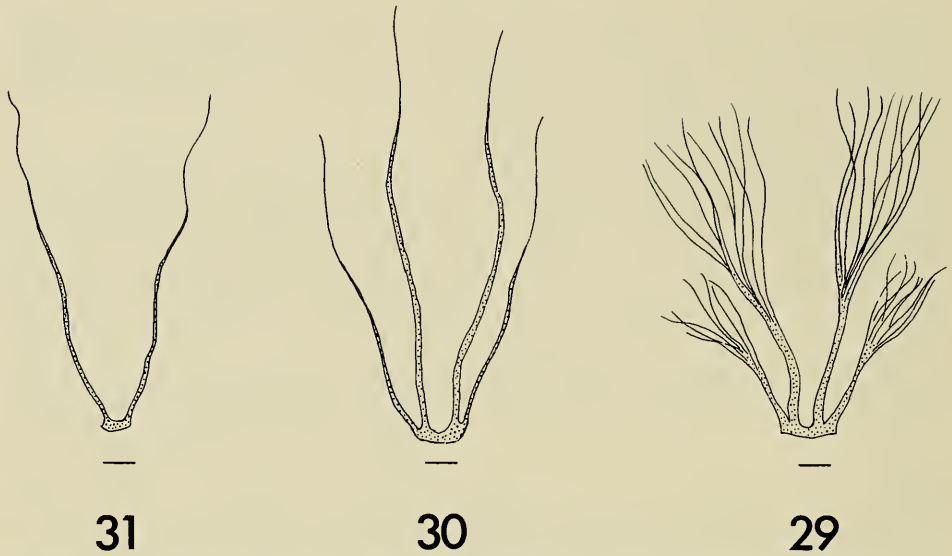
Similar to *A. wilsoni* except as follows:

Diagnosis: Female genitalia with short spermathecae, visible externally, apical end swollen; spermathecal length less than half the width of the epigynum (between lateral foveal margins).

Female holotype (A.M., KS 1777)



Figs 27-28. *Austmusia lindi* sp. nov., female genitalia. 27, epigynum. 28, internal genitalia, dorsal, left hand side. Scale lines 0.2 mm.



Figs 29-31. Abdominal tracheal system. 29, *Badumna insignis* (L.K.). 30, *Metaltella simoni* (Keysl.). 31, *Austmusia wilsoni* sp. nov. Scale lines 0.4 mm.

Measurements (mm) — Carapace length 6.42, width 4.07, height 2.50. Abdomen length 6.7, width 4.2.

Colour pattern — dorsal, paired abdominal markings not fused posteriorly.

Carapace — longer than wide in ratio 1: 0.63. Clypeus height 3.5 diameters of an AME.

Eyes — ALE = PLE > PME > AME in ratio 1: 1: 0.83: 0.78. Interdistances (mm): AME-AME 0.18, AME-ALE 0.19, ALE-PLE 0.12, PLE-PME 0.38, PME-PME 0.30. M.O.Q. (mm): length 0.64, anterior width 0.52, posterior width 0.70. Eye row width (mm): anterior 1.35, posterior 1.73.

Labium — longer than wide in ratio 1: 0.77.

Sternum — longer than wide in ratio 1: 0.70.

Legs — 4123. Lengths, legs 1-4 (mm): 17.53, 15.72, 13.71, 18.13. Spination: Leg 1, femur p 002, d 11(2); tibia p 101, r 001, v 222; metatarsus p 111, r 011, d 002, v 221. Leg 2, femur p 101, d 122; tibia p 101, r 111, v 222; metatarsus p 111, r 011, d 012, v 221. Leg 3, femur p 101, d 122; tibia p 11, r 11, d (1)1, v 212; metatarsus p 1101, r 111, d 012, v 221. Leg 4, femur p 001, d 112; tibia p 101, r 101, d (1) 01, v 212; metatarsus p 111, r 111, d 012, v 221. Trichobothria, legs 1-4; tarsus 8, 8, 7, 7; metatarsus 8, 8, 7, 7. Tarsal claws; superior 9-13 teeth; inferior 4-8 teeth.

Genitalia — Figs 27, 28. Spermathecae relatively short, less than half the width of the epigynum (between the lateral foveal margins); anterior third swollen. Diverticula large, irregularly ovoid, apex lying just lateral to and above the anterior end of the spermathecae; duct broad. Fertilization ducts longer than in *A. wilsoni*.

Types

Holotype female — KS 1777 (A.M.), Dingo Creek, Lind National Park, Victoria, M. Gray and C. Horseman, 24.3.1978; in rotting log, mixed closed/tall open forest.

NOTES ON TRACHEAL SYSTEMS

The tracheal respiratory system of *Austmusia* gen. nov., is unique within the

Amaurobioidea (*sensu* Lehtinen, 1967) so far investigated. Within the Dicotynoidea/Amaurobioidea (*sensu* Forster, 1970; Forster and Wilton, 1973) two basic tracheal patterns have been recognized: A 'complex' pattern consisting of four finely branching tracheal tubes, often arising from a wide spiracle, either confined to the abdomen (Fig. 29) or extending through into the cephalothorax; and a simple pattern consisting of four unbranched tracheal tubes, usually arising from a narrow spiracle, and confined to the abdomen (Fig. 30). In *Austmusia*, the pattern is further simplified (Fig. 31), only the two medial tracheal tubes being present; they are unbranched, confined to the abdomen and arise from a narrow spiracle placed immediately in front of the spinnerets (Fig. 6). However, this pattern is not characteristic of all metaltelline spiders. *Metaltella simoni* (Keyserling, 1877) has the simple pattern of four unbranched abdominal tracheal tubes (Fig. 30). Unfortunately no specimens of *Calacadia* spp. were available for dissection.

ACKNOWLEDGEMENTS

Type material of *Calacadia* Exline was made available by Dr F. Arnaud, California Academy of Sciences. A male of *Metaltella simoni* (Keys.) was lent by Dr H. W. Levi, Museum of Comparative Zoology, Harvard.

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